

REMARKS

In the Office Action, claims 1-15 were rejected and claim 16-23 were subjected to restriction. Claims 22 and 23 are cancelled and new claims 24 and 25. No new matter is added. Upon entry of the amendments, claims 1-15, 23 and 24 will remain pending in the present patent application. Reconsideration and allowance of all pending claims are requested.

Election/Restriction

Applicants hereby affirm the provisional election of the invention of Group 1, claims 1-15 and respectfully withdraw claims 16-21 with traverse.

Applicants submit that the claims in the instant invention are so interrelated that Groups 1-2 require a search of the same technical arts. Thus, Applicants further submit that the search and examination of the entire application can be made without serious burden, even if the Examiner maintains that it includes claims to distinct and independent inventions (kindly see MPEP 803). Hence, it is respectfully requested that the restriction requirement be withdrawn and that claims 1-21 be considered on the merits.

In any event, in keeping with the requirement under 35 U.S.C. §121, Applicants have provisionally elected, for examination, Group 1, claims 1-15.

Rejections Under 35 U.S.C. § 103(a)

Claims 1-12 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Okimura et al. (U.S. Patent No. 5,955,046, herein after "Okimura") in view of Park (U.S. Patent No. 6,706,660, hereinafter "Park") and Kepner et al. (U.S. Patent No. 6,342,191, hereinafter "Kepner").

Okimura discloses a catalytic system comprising a complex oxide as a main phase. The complex oxide has a **spinel structure** and contains Al, Ga and Zn. As

known in the art, metal oxides with spinel structures comprise two metals with a very specific ratio of metal to oxygen. Therefore, the catalytic system described by Okimura is fundamentally different from the catalyst system of the present invention. The catalyst system of present invention comprises simple metal oxides, which is neither disclosed nor suggested by Okimura. Moreover, the structures described by Okimura would not function in the same manner as the claimed system. The claimed system, then, is not a simple variant of or equivalent of the Okimura structures.

Kepner describes a catalyst and binder system with a binder and a pendant ligand substituted or unsubstituted adsorbent. The system described by Kepner also is fundamentally different from the catalyst system of the present invention. The catalyst system of the present invention does not include either a binder or an adsorbent. Here too, the absence of binders and adsorbents renders the claimed system operationally quite distinct from the Kepner system. Accordingly, the claimed system is not simply an obvious variant of Kepner.

Park describes a catalyst system including an oxide support material, and a metal promoter or dopant. However, Park neither discloses nor suggests use of a hydrocarbon as a reductant comprising at least 4 carbon atoms. Indeed, the use of hydrocarbon comprising a higher carbon content is not suggested by any of the cited references.

As noted, Okimura and Kepner describe catalyst systems fundamentally different compared to the catalyst system described in the present invention. Park does not disclose or suggest use of a hydrocarbon comprising at least 4 carbon atoms as a reductant. Accordingly, the combination of the cited references can not suggest or teach the catalyst system of the present invention. Therefore, the references cannot support establish a *prima facie* case of obviousness of claims 1 and 15. Claims 2-12 depend directly or indirectly from claim 1 and therefore are similarly patentably distinct from the cited art.

Claims 13 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Okimura in view of Park and Kepner as applied to claims 1-12 and 15, and further in view of Balmer-Millar (U.S. Patent Application 2003/0118960, hereinafter "Balmer-Miller").

Balmer-Miller describes a NO_x after-treatment system. As described by Balmer-Miller, the reductant used for NO_x reduction is derived from a fuel source having oxygenated hydrocarbons. The example of the fuel source given is gasoline. Gasoline itself is not used as the reductant, but is merely used to derive the oxygenated reductant, which is finally used in the catalyst system to reduce NO_x. However, Balmer-Miller neither suggests nor discloses use of hydrocarbon comprising at least 4 carbon atoms. The catalyst system described by Balmer-Miller uses only oxygenated hydrocarbons. As well-known in art, and also defined in paragraph 18 of the present application, a hydrocarbon contains only carbon and hydrogen atoms. The use of gasoline and hydrocarbon containing 8 carbon atoms as described in claims 13-14 is neither suggested nor disclosed by Balmer-Miller. As would be appreciated by those skilled in the art, the reactions of oxygenated hydrocarbons and non-oxygenated hydrocarbon are fundamentally different.

Furthermore, claims 13-14 depend directly from claim 1, which is patentably distinct. Accordingly, for all of the reasons summarized above, a *prima facie* case of obviousness cannot be supported against claims 13-14 by the cited art.

New Claims


New claims 24 and 25 are added without adding new matter.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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